

THE

Walter and Eliza Hall
Institute of Research

IN

Pathology and Medicine

ANNUAL REPORT

1923—1924



The Walter and Eliza Hall Institute of Research in Pathology and Medicine

Director's Report to the Board for the Year ended
18th July, 1924

(Published by courtesy of the Board of the Institute.)

This year, the fourth since the appointment of the first whole-time Director, has demonstrated with increased force the value of the Institute to the Hospital, to the medical profession and to the community. It has become still more evident that a much larger annual expenditure will be necessary if the Institute is to expand and play an efficient part in the development of medical science in Australia.

The Staff of the Institute.

The new director, Dr. C. H. Kellaway, arrived in the middle of August, 1923, and took over the charge of the Institute from Mr. Harold Dew, who had been Acting Director since Dr. S. W. Patterson's departure for England. At the end of December Mr. Dew's appointment as First Assistant terminated, and he has since continued his work on Hydatid Disease in a part-time capacity. Owing to financial stringency, the appointment of a whole-time First Assistant has not been possible, although for the further progress of the Institute it is absolutely essential that such an appointment should be made in the very near future. Recognising that this appointment is urgently necessary for the efficient development of the Institute, the Board has given serious consideration to the provision of ways and means to make it possible, and active steps are being taken to increase the income of the Institute to meet the additional expenditure which will be involved. The Trustees of the Walter and Eliza Hall Trust have signified their willingness to materially increase their annual subsidy if the balance of the required money can be raised, and it is hoped that in the near future the financial position of the Institute will warrant the Board appointing a First Assistant.

Dr. Lucy Bryce is very shortly going for a trip to Europe, and will be leaving us at the end of July. She has worked at the Institute for the past two years, and during that time has done valuable work. Owing to our financial position, it will not be possible to fill her position when she vacates it.

By the generosity of Dr. Hume Turnbull, who has guaranteed the necessary expenditure for the ensuing two years, we have been able to secure the services of Miss Cecil Maudsley to take charge of our Electro-cardiographic Department where already much useful work is being done.

The Staff of the Institute at present is as follows:—

Whole Time Workers—

Dr. C. H. Kellaway, M.D., M.S. (Melb.),
M.R.C.P. (Lond.).

Dr. Lucy Bryce, B.Sc., M.B., B.S.
(Melb.).

Miss Maud Cowen, B.Sc. (Biochemist).

Miss Cecil Maudsley, B.Sc. (Electro-
cardiography).

Miss F. E. Williams (Bacteriology and
Serology).

Part Time Workers—

Mr. H. R. Dew, F.R.C.S. (Eng.) (Hyda-
tid disease).

Dr. J. F. Chambers, M.B., B.S., M.R.C.P.

Hospital Staff—

Dr. F. M. Burnet, M.D., B.S. (Melb.)—
Senior Resident Pathologist.

Dr. K. Daly, M.B., B.S. (Melb.)—
Pathological Registrar.

Miss B. A. Splatt, B.Sc. (Melb.)—Bio-
chemist.

Dr. W. W. S. Johnston, M.D. (Melb.)—
V.D. Department.

The Work of the Institute.

Hydatid Disease.

During the year 654 complement fixation reactions for the diagnosis of this disease have been carried out by the technique developed by Dr. N. H. Fairley at this Institute, and Miss F. E. Williams has also made tests of skin-sensitiveness to Hydatid protein in nearly 200 cases. We are accumulating a large volume of evidence in regard to the immunity reactions of the disease, and the results of tests on blood sent to us from all parts of the State are proving of great value in the diagnosis of obscure cases. Mr. H. R. Dew is analysing the results, and some interesting new facts concerning the immunity response of man to the parasite have come to light. Miss Williams is also submitting many of the sera to quantitative precipitin tests, and Dr. Lucy Bryce and I have been investigating, by means of the anaphylactic reaction, the antigenic value of some preparations containing Hydatid protein. Mr. Dew is also making a series of experiments on the morphology and development of the parasite. The results of these various investigations will shortly be published.

Bacterial Infections.

Dysentery.—Miss Williams spent much of the early part of this year in completing the research she commenced with Dr. S. W. Patterson. This consisted in the classification of some 200 strains of bacilli obtained from cases of Dysentery and Summer Diarrhoea scattered all over Australia. The results are in the press.

Tuberculosis.—Dr. Lucy Bryce investigated the von Pirquet skin reactions in a large series of cases of this disease, and the material so obtained was embodied in Dr. Penfold's paper on this subject at the recent Medical Congress. With Miss Williams, she also carried out an experimental investigation of the value of the complement fixation reaction for Tuberculosis, the preliminary results of which were reported at Congress. A paper containing the full results of this work has been sent to the *Journal of Pathology and Bacteriology*.

Pneumonia.—Dr. B. A. Warner, the Clinical Research Scholar, continued her work on typing and serum treatment in this disease during the earlier part of this year. She gave a preliminary report of this work at Congress, which appeared in the transactions, but owing to her appointment as Superintendent of the Queen Victoria Hospital, she was reluctantly compelled to relinquish this research.

Gonococccal Infections.—Dr. W. W. S. Johnston, who late last year returned from England, has been doing the routine complement fixation tests for these infections. The results have been of value in the detection of some doubtful cases of infective arthritis and in controlling the treatment of many cases of frank disease.

Typhoid.—Dr. F. M. Burnet, the Senior Resident Pathologist, during the present year has evolved a new agglutination test which should prove useful in the diagnosis of this disease. Its value lies in the fact that it throws light upon the existence of infection in inoculated people in whom diagnosis is otherwise very difficult. It has already demonstrated its usefulness in the investigation of two or three cases occurring in the Hospital in which the diagnosis was obscure.

Bacteriophages.—More recently Dr. Burnet has been studying the properties of the bacteriophages, more especially of the colon group. It is still uncertain whether these living filterable viruses which lyse or destroy the less resistant bacteria, are produced by the human or animal host, or whether they form part of the mechanism whereby the bacteria themselves are adapted by changes in type for the struggle against adverse conditions. In addition to the classical varieties described by D'Herelle, Twort and other workers, Dr. Burnet appears to have met with a bacteriophage with somewhat

different characters. His work in this field seems likely to yield interesting results in the near future.

Syphilis.—1295 routine Wasserman tests were done during this year. The results have been very useful in confirmation of tests done elsewhere, and in special and doubtful cases. In several instances careful re-investigation at the Institute has led to definite and reliable negative results, and has removed a load of anxiety from physician and patient alike.

Dr. Graham and Miss Williams have been interested in the quantitative changes in the reaction in children in the course of treatment, and the latter has done a number of careful quantitative tests in which the extent of the reaction has been accurately gauged at various times during treatment. Dr. Graham read a valuable paper at Congress, in which use was made of a good many of these observations.

Tissue Culture.—During the last two months Miss Williams and I have been acquiring the technique of tissue culture, and have carried out a few successful experiments. Owing to the kindness of a member of the medical profession, who has also placed a valuable wall clock in our lecture room, we will be able to purchase a mercury vapour lamp for the purpose of obtaining pure cultures of living tissues by Drew's method, and hope, when the technique is perfected, to make use of it for the investigation of the reaction of the tissues to various infections.

Biochemistry.—Dr. S. O. Cowen and Miss Cowan (the Institute Biochemist) have been interested in tests for liver function, and have used some of the newer tests for its evaluation. Dr. Davies is at present working at the Institute upon the value of Widal's haemoclastic reaction in some diseases in which liver involvement is suspected.

Dr. Johnston and Miss Splatt have been using a dilution and concentration test side by side with other biochemical tests for the evaluation of renal function in cases of nephritis and also in some surgical conditions. Some of these results will be embodied in Dr. Johnston's Post Graduate lecture next week.

Lipaemia.—Miss Cowan and I have been making an experimental investigation of the increase in the fat in the blood in Diabetes and the influence of insulin. These experiments have given some interesting results.

Gastric Test Meals.—Dr. F. A. Apperly, Acting Professor of Pathology, has continued to do some of the experimental part of his work at the Institute, and has published several papers this year.

Gas Analysis.—Dr. J. F. Chambers has been continuing his observations on changes in basal metabolism in Exophthalmic Goitre under various kinds of treatment. He has now obtained a very large experience of the use of this method of confirming the diagnosis and controlling the treatment in these cases.

Cancer Research.—Dr. Marion Wanliss, the Grice Cancer Research Scholar, completed early this year a study of malignant disease of the uterus. She has also made a number of experiments with the Virus of Rous Sarcoma, but was not able to go on with these owing to the dearth of Plymouth Rock chickens, which are the only species in which this tumour grows. She has since been investigating the effects of embryonic tissue extracts upon the growth of mice.

Jacksonian Prize.

The most outstanding event of the year has been the award of the Jacksonian Prize of the Royal College of Surgeons to Mr. Harold Dew for an essay on Malignant Tumours of the Testis. Mr. Dew has made a very valuable contribution to the Surgical Pathology of these rare forms of malignancy. His work will be published as a separate monograph.

Other Activities.

Since Miss Maudsley joined the Staff, she has been doing some of the Institute microphotography, which formerly had been done elsewhere. We hope, during the course of the forthcoming year, to install an efficient plant, as at present we have no proper apparatus for this purpose.

The practice, commenced by Dr. Patterson, of giving a series of Saturday morning lectures and demonstrations to fifth-year students during second and third terms, has been continued this year. The course has included discussions of pathology and medicine from the standpoint of biochemistry and recent advances in physiological knowledge, with some demonstrations of practical methods, and has been well attended.

The Director has also contributed the first four of a series of Post-graduate Lectures, under the auspices of the Melbourne Permanent Committee for Post-graduate Work, which are being held at the Institute. The subject of these lectures is the Kidney in Health and Disease. The Director has been invited to give a similar course of lectures in Sydney early in the month of September.

During the year the authorities at the island of Nauru sent a request for the services of a skilled worker to investigate some doubtful cases of Leprosy, and Mr. Harold Dew was invited by the Commonwealth Government to do this work, which necessitated an absence of rather more than two months from the Institute. He prepared a short, but interesting, report, based upon his experiences there.

Equipment, etc.

A good deal of attention has been paid to the question of suitable animal accommodation. An additional animal house has been erected, and the three existing houses have been provided with brick floors. The loss of valuable stock animals from coccidiosis has been greatly reduced by this means. It is proposed also to replace the insanitary cages in the present houses by iron frames to carry wire cages.

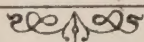
The experimental room in the basement has been fitted up, and there are now two kynographs, one for isolated organ work, and a second for ordinary experimental purposes. An efficient but rudimentary artificial ventilation plant has also been installed, and a good deal of work has been done there during the last year.

A room on the second story has also been fitted up for tissue culture, and a dustproof glass case has been installed, which enables the necessary manipulations to be carried out without risk of infection to the tissues. The walls of the room have been enamelled, so that the room itself can be kept aseptic as far as possible.

The Library.

Owing to the generosity of the Edward Wilson Trustees, who have given £3000 for the purpose, it is at last possible to gather together a working library. By the end of next year the library should be fully equipped, and the appointment of a Secretary to the Director will provide for this, and for its care when equipped. For the past year Dr. Marion Wanliss has very efficiently looked after our present small collection of books and periodicals in an honorary capacity.

List of Publications from the Institute



The following is a list of the publications from the Institute during the year 1923-24:—

- “The Investigation of the Immunity Reactions in Hydatid Disease,” by K. Douglas Fairley, M.D.—Medical Journal of Australia, 14/7/23.
- “The Treatment of Typhoid Fever by Intravenous Vaccines,” by K. Douglas Fairley, M.D.—Medical Journal of Australia, 22/9/23
- “Diagnostic Methods in Hydatid Disease,” by Harold R. Dew, F.R.C.S., Eng., and Miss F. E. Williams.—Medical Journal of Australia, 15/3/24.
- “Preliminary Note on a Stable Antigen for the Hydatid Complement Fixation Test,” by S. W. Patterson, M.D., and Miss F. E. Williams.—Medical Journal of Australia, 3/11/23.
- “Complement Fixation Test in Tuberculosis,” by Lucy M. Bryce, M.B., B.S., B.Sc., and Miss F. E. Williams.—Medical Journal of Australia, 12/4/24.
- “Preliminary Note on a New Method of Serological Investigation in Cases of Suspected Typhoid Fever,” by F. M. Burnet, M.D., B.S.—The Medical Journal of Australia, 1/3/24.
- “Hydatid Disease of the Liver,” by K. Douglas Fairley, M.D.—The Medical Journal of Australia, 23/2/24.

CHARLES H. KELLAWAY, M.D., M.S., M.R.C.P.,
Director.

18th July, 1924.